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August 18, 1994

VIA HAND DELIVERY
Mr. William A. Luther
Facilitator-FCC Negotiated Rulemaking
Committee
Room 734
FCC - Field Operations Bureau
1919 M Street, N.W.
Washington, D.C. 20554

Dear Mr. Luther:

Pursuant to the discussion at the August 5, 1994 meeting of the Negotiated Rulemaking Committee, I am submitting the attached statement on terrestrial fixed point-to-point microwave telecommunications to the Negotiated Rulemaking Committee.

The general thrust of the statement is to maximize the sharing capabilities between the Fixed Satellite Service and the terrestrial fixed point-to-point service. The Negotiated Rulemaking Committee is urged to take into account the context within which its work pertaining to the 27.5-29.5 GHz band is being conducted. The aforementioned context includes the international character of spectrum management issues, availability of new telecommunications technology that enhances and maximizes efficiency in the use of spectrum, and the exploding growth in the requirements for terrestrial fixed point-to-point microwave telecommunications in the USA and abroad. Finally, the practical fact, based on long experience, is that terrestrial fixed point-to-point systems provide high efficiency 2-way links at a modest cost to users

The Negotiated Rulemaking Committee should, as a matter of completed staff work, incorporate information in the attached statement in its Report to the Commission.

Very truly yours,

Leonard R. Raish

Leonard R. Raish

LRR:cej
Attachment

Distribution: Members of Negotiated Rulemaking Committee
FCC Staff Involved with Negotiated Rulemaking Committee

AUGUST 18, 1994

STATEMENT TO THE NEGOTIATED RULEMAKING COMMITTEE REGARDING TERRESTRIAL FIXED MICROWAVE TELECOMMUNICATIONS

I. INTRODUCTION

The purpose of this statement is to present additional information to the Negotiated Rulemaking Committee with the view to maximizing sharing capabilities of the 27.5-29.5 GHz band. Efficient use of the finite radio frequency spectrum to accommodate as many services as possible in the public interest has been and is a basic policy of the Commission. There can be more sharing in the 27.5-29.5 GHz band than between the two services that have been considered thus far in the Negotiated Rulemaking Committee. Such additional sharing can be accomplished by taking advantage of the already recognized capability of the Fixed Satellite and terrestrial fixed microwave services to share spectrum plus the use of LMDS that would permit the Fixed Satellite Service to operate in the 27.5-29.5 GHz band on frequencies clear of LMDS operations. Further, the international nature of spectrum allocations should not be swept aside as a factor in considering future use of the 27.5-29.5 GHz band. The Negotiated Rulemaking Committee, in carrying out its charter, should include advice to the Commission on these points. The balance of this statement addresses the broader context which the Committee must consider in carrying out its work.

II. INTERNATIONAL

The Radio Regulations of the ITU since 1979 have allocated the 27.5-29.5 GHz band to Fixed, Satellite (earth-to-space), and Mobile Services on a co-primary basis. In addition, the Radio Regulations through footnotes 882A, 882B, 882C, and 882D provide for additional allocations, viz (a) 27.500-27.501 GHz to the Fixed Satellite Service (space-to-earth) on a primary basis for beacon transmissions, (b) 27.501 GHz to 29.999 GHz to the Fixed Satellite Service (space-to-earth) on a secondary basis for beacon transmissions, and (c) 27.500-30.000 GHz for feeder links for the Broadcast Satellite Service. These allocations were made for planning purposes with the confidence that terrestrial fixed communications could effectively share. (Experience since then has proven this.) While "mobile" is included in the international allocation, it was always recognized that the 28 GHz spectrum did not lend itself to terrestrial mobile communications. The co-primary allocation was made in the event some future unforeseen mobile technology might be developed.

Spectrum allocations are international in character, particularly when satellite communications are involved. Aviation and maritime communications, although not an issue here, add to the international character of spectrum allocations. Worldwide PCS and paging is in the offing and will depend on international spectrum allocations.

The export by U.S. manufacturers of radio communications-electronics equipment is likewise tied to international spectrum allocation. Most countries look to the Radio Regulations of the ITU and its standards bureau for guidance on equipment design. The 28 GHz band is coming into operational use for terrestrial fixed services in many countries, particularly European. So far, two countries, Germany and the United Kingdom, have asked U.S. microwave equipment manufacturers to develop equipment and systems for use in their newly opened 28 GHz band. Additionally, there is interest by S.I.P. Italia in terrestrial fixed systems in the 27.5-29.5 GHz band with clear indications the Italian Government will be reacting favorably. Manufacturers in the U.S. are waiting for the band to be opened for use domestically so that radios can be built with strong export potential and with unique U.S. technology. This will foster U.S. competitiveness in the international marketplace. By allowing U.S. manufacturers to produce "uniform" and, therefore, less costly domestic and export product lines, a major contribution can be made to the U.S. balance of trade and additional employment can be assured for U.S. workers.

As noted, the 27.5 to 29.5 GHz band has been allocated to Fixed and Fixed-Satellite services by the ITU. ITU-R (formerly CCIR) has established several channeling plans in Recommendation 748 for point-to-point microwave use of the band. In 1993, the U.S. delegation to ITU-R SG9 has worked to successfully introduce a 2.5 MHz grid in the same recommendation. As a major member of the ITU, the USA has committed to follow the internationally agreed upon ITU-R recommendations when ever possible.

III. DEFINITION OF FIXED SERVICES SHOULD NOT BE OVERLOOKED

The Radio Regulations of the ITU define the Fixed Services as "A radio communication service between specified fixed points." The FCC has adopted the identical definition in its Rules (See FCC Rules § 2.1). Emphasis is on the word "specified" which separates the fixed service from a "broadcast" type of service. While the FCC has extended the definition of the "Fixed Service" to include MDS services, that action should not be construed so as to exclude traditional fixed service systems. When applied to the 27.5-29.5 GHz band, the traditional fixed services should not be overlooked. After all, it is this latter

that is the "core" of the "Fixed Service" as defined both by the ITU Radio Regulations and the FCC Rules. LMDS is much less of a fixed service with the line of demarcation between it and a de facto broadcast being unclear at best. As a minimum, in granting MDS licenses, the Commission should require MDS applicants to specify each reception point in their system and where a duplex type of operation is involved each transmit point should be specified and licensed. Unless this is done the concept of a "Fixed Service" breaks down and the spectrum sharing envisaged in the International Table of Frequency Allocations likewise breaks down.

IV. WHY A TERRESTRIAL POINT-TO-POINT MICROWAVE BAND IS REQUIRED BETWEEN 23 AND 38 GHz

The Commission has already substantially reduced the spectrum allocations for point-to-point microwave communications to make way for new technologies. For example, in ET Docket 92-9, the Commission has reallocated spectrum in the 2 GHz bands to PCS and other emerging technologies. Frequencies in the 18 GHz band have been made available for video distribution. The 12.2-12.7 GHz has been reallocated to direct satellite broadcasting. The H group of channels in the 2.5-2.6 GHz band have been reallocated to MMDS. And while the Commission proposes to relocate thousands of 2 GHz users to higher frequency bands (4, 6, 10 and 11 GHz), many of those bands are already crowded. When the future growth of point-to-point microwave requirements is added into the picture, it is clear that additional spectrum will be required.

The key role of Super High Frequency (SHF) point-to-point microwave systems for the successful implementation of PCS and of the NII (ATM/SONET ring access) has been recognized. However and at a time when the 38 GHz band is already drowned with license applications (See the pages of applications for 38 GHz frequencies listed in FCC Public Notice Reports No. 1089 released June 29, 1994, No. 1090 released July 6, 1994, No. 1092 released July 20, 1994, and No. 1093 released on July 27, 1994), one cannot find any practical microwave band for Part 21 or Part 94 use in the 15 GHz worth of spectrum between 23 and 38 GHz.

Most of the future Fixed Satellite Service growth is recognized to be in the SHF bands. In addition to the applications mentioned just above, continuous and increasing pressures from emerging technologies in lower frequency bands are making point-to-point microwave spectrum below 20 GHz look abnormally small. The 4, 6 and 10 GHz point-to-point microwave bands are threatened by the need of FSS feeder links as discussed under ITU Task Group 4/5. MSS up and down links are awaited in the 2 GHz band and are threatening the 2.5 GHz band,

under ITU TG8/3. Recently (March 1994), the 2 GHz microwave systems used for Public Safety operations have lost their former "immunity" from re-location and will add to the pressure on the SHF bands when they are forced to relocate. As if it was not enough, the recent "PCIA 2003 Spectrum Estimate Report" (June 9, 1994, PCIA PCS Technical and Engineering Committee) concludes that "since existing allocations for Cellular, ESMR, Paging, and PCS total approximately 190 MHz, there is an additional 185 to 244 MHz that needs to be allocated prior to 2003 for licensed services" to support mobile communications.

V. WHY THE 28 GHz BAND?

Contrary to the situation existing just a few years ago, advances in MMIC technology and spin-off of now underused military R&D investments allow for reliable yet inexpensive point-to-point microwave radios at 28 GHz. 26-28 GHz also represent the commercial limit for the application of current Gas-FET technology. As such, the 28 GHz currently represents a "battlefield" for the optimization and development of some of the most recent US technologies that are not available at 38 GHz.

The point-to-point transmission characteristics of the 28 GHz band can be compared advantageously with those at 23 GHz and consequently represent an ideal alternative to the distance limited 38 GHz.

The 28 GHz band is being opened now in Europe (more particularly as pointed out above) in U.K., Germany, and Italy and is viewed as a key replacement band for most of the 23 GHz which has been reallocated to HDTV BSS in ITU regions 1 and 3. As clearly stated, several US based manufacturers are waiting for the band to be opened domestically to build radios that will have strong export potential and unique US technology. US based manufacturers have so far performed well in the European SHF market environment. European based suppliers are expected to deliver 28 GHz point-to-point products as early as 1995.

VI. AN LMDS SYSTEM IS NOT AN ALTERNATIVE TO A POINT-TO-POINT SYSTEM

Proposed LMDS systems will mostly provide low efficiency, one-way communication links. Point-to-point systems provide high efficiency 2-way links. Under some circumstances an LMDS or a point-to-multipoint system can appear to make use of and provide a few point-to-point links. Those are dedicated to point-to-multipoint applications. Their location, direction and capacity are totally determined by the point-to-multipoint system they

serve. As such, they are in no way a substitute to an independent point-to-point transmission system. High frequency point-to-point applications include but are not limited to:

- LAN interconnections (user to user building as well as wide area networking)
- Transportable equipment for emergency restorations
- interconnection of Mobile communication clusters (up to 2X155Mb/s)
- link between cellular phone exchange and radio base station (45Mb/s)
- interconnection between pedestrian clusters (45Mb/s) (PCS base stations to controller link)
- backbone for PCS microcells (1 to 2T1)
- backhaul for base stations mobile switch interconnect (up to D3)
- traffic lights management
- microcell base stations interconnections (1 or 2 DS1)
- back-up for Fiber-Optic links (diverse routing)
- SONET/ATM access network (52 to 155 orbits) and ring closures
- ADMs ring closure/interconnection or tributary extension

An analysis indicates 28 GHz LMDS systems will transport 6 one-way analog video channels in a given 120 MHz within the overall requested 1 GHz channel that is necessary for the operation of just one LMDS system. In the exact same amount of spectrum, a 155Mb/s digital point-to-point radio could carry 84 bi-directional NTSC or 21 bi-directional HDTV channels! Instead of allocating 2000 MHz of spectrum for LMDS and freezing out other fixed services systems as currently being planned, substantial narrowing of the proposed allocation should be considered. 200 MHz of compressed digital video theoretically can do the job for the LMDS interests.

VII. SPECTRUM IS VALUABLE

The FCC's recently conducted spectrum auctions surprised all telecommunications interests as to the amounts of money the private sector was willing to pay for access to frequencies. The Negotiated Rulemaking Committee should at least acknowledge and note to the Commission that in the instant proceeding 2000 MHz is being considered for reallocation to a single service. It should also consider that virtually the same service can conceivably be provided in a much smaller allocation if more modern technology were used. Spectrum auctions should remind us of the value of spectrum. The Fixed Satellite Service, terrestrial operational-fixed microwave, LMDS, and the beacon services supporting satellite systems all could be accommodated in the 27.5-29.5 GHz band by maximizing efficient use of the spectrum.

VIII. HISTORICAL NOTE

On April 19, 1991, Harris-Farinon filed a Petition for Rulemaking with the FCC to adopt a channelization plan for the 27.5-29.5 GHz band and to make the band available for both Part 21 and Part 94 services. The Digital Microwave corporation filed supporting comments. That petition was filed for two primary purposes, viz, (a) to channelize the 27.5-29.5 GHz band so that manufacturers would have a standard for their products and (b) the telecommunications users were already conscious of the approaching saturation of the 18 GHz band and developing congestion in the 23 GHz band in some metropolitan areas.

Later the Suite 12 Group filed their application and Harris-Farinon petition has been dormant in the Commission.

X. CONCLUSIONS

Based on the foregoing discussion, the following conclusions are recapped:

A. More sharing of the 27.5-29.5 GHz band is feasible than just between the Fixed Satellite Service and LMDS. It is incumbent upon the Negotiated Rulemaking Committee to indicate to the Commission that alternatives are available that would permit terrestrial point-to-point microwave to operate in the band under discussion.

B. The international nature of spectrum allocations should not be swept aside in debating domestic spectrum usage. In this instance, there has been a long standing allocation of the 27.5-29.5 GHz band by which nations of the world have looked forward to planning terrestrial point-to-point microwave system in the band on a shared basis with Fixed Satellite Systems. (Recognition is accorded as well to satellite beacon systems in the 27.5-29.5 GHz band.)

C. Noting B above, Germany and the U.K. have asked U.S. microwave equipment manufacturers to develop equipment and systems for use in their newly opened 28 GHz band per the Radio Regulations of the ITU. Additionally, the

Italian Government has indicated favorable reactions to a proposal from their telecommunications industry for use of the 28 GHz for point-to-point microwave.

D. U.S. manufacturers would have a competitive edge internationally if U.S. domestic allocations were consistent with the international.

E. The ITU Radio Regulations and the FCC Rules both define "Fixed Service" as a radiocommunication service between specified fixed points. Point-to-point microwave is at the "core" of the Fixed Service and the fact the FCC has extended this to include MDS should not serve to exclude traditional fixed systems.

F. The 27.5-29.5 GHz band is essential to point-to-point microwave. With hundreds of applications for licenses for operations in the distance limited 38 GHz band already on file at the FCC, that band is rapidly on the way to saturation. In ITU Regions 1 and 3, the 23 GHz band is programmed for HDTV broadcasting. (The 23 and 28 GHz bands have roughly the same characteristics.)

G. LMDS systems are not an alternative to traditional point-to-point microwave.

H. Considering the value of radio frequencies (as evidenced by the recently completed spectrum auctions), the Committee should advise the Commission that technology is available to achieve LMDS service in much less spectrum.

I. Maximization and efficient use of the spectrum is a long standing policy of the Commission.

Eric J. Schimmel
Vice President

August 22, 1994

Susan Magnotti, Esquire
Designated Federal Official-FCC Negotiated
Rulemaking Committee
Room 6218
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Dear Ms. Magnotti:

The members of the Fixed Point-to-Point Section of the Telecommunications Industry Association (TIA) have been following the FCC proceedings and deliberations concerning access to and future use of the 27.5-29.5 GHz band. The work of the Negotiated Rulemaking Committee also is being followed with particular interest.

Since TIA is not a member of the Negotiated Rulemaking Committee, this letter is intended as a voluntary public comment intended to be helpful as the Committee proceeds with its work. The members of the Fixed Point-to-Point Section are interested in preserving access to the 27.5-29.5 GHz band for terrestrial fixed microwave systems. Requirements for such systems are exploding both in the USA and elsewhere, particularly in Europe. American manufacturers, with a solid base of domestic customers in the 27.5-29.5 GHz band, can be very competitive in overseas markets. As a matter of fact, some American manufacturers have already been asked to design terrestrial fixed equipments to operate in the 27.5-29.5 GHz band. For this reason, the Negotiated Rulemaking Committee should not disregard the importance of access to frequencies in the aforementioned band for USA terrestrial fixed microwave service systems as well as for export.

A review of the August 18, 1994 statement filed with the Negotiated Rulemaking Committee by the Harris-Farinon/Digital Microwave Corporation representative on the Committee reflects the views of and is supported by the Fixed Point-to-Point Section of TIA.

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Representing the telecommunications industry in association with the Electronic Industries Association

It would be very much appreciated if you would make the above information available to the members of the Negotiated Rulemaking Committee.

Sincerely,

Eric Schimmel
V.P., Mobile Communications and
Network Equipment
TIA

EJS/sfj

ENCLOSURE (C)
NRMC No.69/REV/1

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September 19, 1994

Memorandum for: Mr. William Luther, Facilitator
Negotiated Rulemaking Committee

Subject: Non-Technical Items Not Included in Body of Report But To Be Forwarded as Added Information

References: (a) NRMC-69
Dated September 11, 1994

Reference (a), prepared on behalf of the Digital Microwave Corporation and Harris Corporation-Farinon Division was considered by the Negotiated Rulemaking Committee at its September 13, 1994 meeting and referred to Working Group 1 for further action. The attached is a revision of Reference (a) based on discussions in Working Group 1. Despite being revised, the attached did not in the end receive consensus support. Accordingly, the attached is submitted herewith to be appended to the Final Report of the Negotiated Rulemaking Committee as a matter that was considered, garnered some support, but failed to receive consensus support.

Leonard R. Raish

Leonard R. Raish

NON-TECHNICAL ITEMS NOT INCLUDED IN REPORT BUT FORWARDED AS ADDED INFORMATION

As the Negotiated Rulemaking Committee progressed with its deliberations, some items of a non-technical nature arose in the course of discussion that were not considered because those items were peripheral to the Committee's primary task. Nevertheless, the information involved in those items is deemed to be of sufficient interest to be forwarded to the Commission as added information. These items are discussed in the Sub-Sections below.

A. INTERNATIONAL AND ITU CONSIDERATIONS

In the course of the Committee's discussions, reference was made to the possible "ripple effect" internationally of some of the actions being proposed in CC Docket No. 92-297 and later discussed in this Report. LMDS can, for most purposes, be regarded as a domestic service within the U.S. However, satellite operations generally have international implications including being dependent upon spectrum derived from the International Table of Frequency Allocations contained in the Radio Regulations of the ITU and upon detailed coordination and notification procedures set forth in the ITU Radio Regulations.

At the time the international allocations of the 27.5-29.5 GHz band were made, "traditional" terrestrial Fixed Services were in the minds of delegates and the assumption was that sharing arrangements with the Fixed Satellite services would be realistic and simple to arrange. The superimposition of "broadband" terrestrial Fixed Services upon this scenario may have unintended "ripple effects."

B. INTERNATIONAL TRADE RAMIFICATIONS

Export by U.S. manufacturers of telecommunications equipment using radio is tied generally to international spectrum allocations as most countries look to the ITU Radio Regulations and its standards bureau for guidance on equipment design. Manufacturers in the U.S. can be most competitive in world markets if they have a domestic base upon which to build their export markets. Technology that is uniquely American can be very successful in world markets.

C. DEFINITION OF FIXED SERVICES

The ITU Radio Regulations define the Fixed Service as "A radiocommunication service between specified fixed points." The FCC has adopted the identical definition in its Rules (See FCC Rules § 2.1). The Commission representatives at the Negotiated Rulemaking Committee stated the multipoint distribution service is deemed a Fixed Service. Re-examination of the ITU and FCC definitions of the Fixed Service may be timely.

D. INTERNATIONAL ALLOCATIONS IN THE 28 GHz BAND FOR SATELLITE BEACON TRANSMISSIONS

The Radio Regulations of the ITU since 1979 have allocated the 27.5-29.5 GHz band to Fixed, Satellite (earth-to-space), and Mobile Services on a co-primary basis. In addition, the Radio Regulations through footnotes 882A, 882B, 882C, and 882D adopted at WARC 1992 provide for additional allocations, viz, (a) 27.500-27.501 GHz to the Fixed Satellite Service (space-to-earth) on a primary basis for beacon transmissions, (b) 27.501 GHz to 29.999 GHz to the Fixed Satellite Service (space-to-earth) on a secondary basis for beacon transmissions, and (c) 27.500-30.00 GHz for feeder links for the Broadcast Satellite Service on a secondary basis. These allocations should not be overlooked in the course of the Commission's rulemaking action in CC Docket No. 92-297.

E. TRADITIONAL FIXED MICROWAVE AND LMDS FIXED MICROWAVE

Reference is made to the Commission's Second Notice of Proposed Rulemaking in CC Docket 92-297 released on February 11, 1994 (at para. 27) where it is stated "Accommodating all proposals would, we believe, result in the availability of maximum communications services possible at the lowest consumer prices possible." Noting this, the representative of the terrestrial fixed microwave interests raised the point of accommodating all types of terrestrial fixed in the 27.5-29.5 GHz band. If it can be achieved, there appears to be no reason not

to do it. In this connection, the Digital Microwave Corporation and Harris Corporation through its Farinon Division submitted a joint statement to the Committee supporting the need for access to the 27.5-29.5 GHz band for point-to-point systems that would be outside of the point-to-point operations encompassed in an LMDS system. The joint statement (which was supported in a Telecommunications Industry Association letter to the Committee) was noted.

In the ensuing discussion recognition was accorded to the fact that two types of terrestrial fixed microwave have evolved, viz, "traditional" fixed microwave as compared to fixed microwave intended to serve as the backbone within an LMDS system and for the interconnection of hubs of those systems. The "traditional" fixed microwave interests pointed out that while under some circumstances a point-to-multipoint system can also provide some point-to-point links, their location, direction, and capacity are in general determined by the point-to-multipoint system they serve. As such, they would be an unlikely substitute for "traditional" point-to-point microwave transmission systems engineered to specific customer requirements.

Several examples were cited in the above-referenced joint statement of point-to-point microwave requirements that could best be met by frequencies in the 27.5-29.5 GHz band employed in independent microwave systems. The representative of the terrestrial fixed microwave interests urged that traditional point-to-point microwave systems, should not be swept entirely

out of the 27.5-29.5 GHz band.

The FCC Facilitator assigned to the Negotiated Rulemaking Committee explained while the views of the "traditional" fixed microwave interests were recognized, the Committee's charter restricted its activity to maximizing co-frequency sharing in the 27.5-29.5 GHz band between LMDS and/or the Fixed Satellite Service (FSS). He went on to explain the Commission is planning to use the Committee's Report as the basis for further Proposed Rulemaking action. He then stated that collateral items such as permitting "traditional" terrestrial microwave services in the 27.5-29.5 GHz band can be addressed in comments on a likely Third Notice of Proposed Rulemaking.

F. CROSS BORDER COORDINATION

"Spectrum auctions" and "wide area licensing" need to be harmonized with requirements of international cross border coordination, e.g., Canada, Mexico, and Bahamas, and coordination requirements of the ITU Radio Regulations as well as other international agreements in which the U.S. is involved.

G. CONCERN THAT U.S. PLANNING FOR 27.5-29.5 GHz BAND COULD BE GOING DOWN CONFLICTING PATHS

For some time the U.S. has supported use of the 27.5-29.5 GHz band for satellite communications in the course of its participation in international telecommunications meetings and conferences. Also, as a matter of maximizing efficient use of the band, the U.S. has assisted in the development of technical standards and characteristics for sharing the 27.5-29.5 GHz band

between "traditional" terrestrial fixed and fixed satellite services. Appendix 28 of the ITU Radio Regulations, CCIR Recommendation 847, and CCIR Recommendation ITU-R SF 1006 and other similar provisions were developed with U.S. participation. Concurrent with the Commission's proceeding in CC Docket No. 92-297 are on-going U.S. preparations for several ITU technical meetings being held in the weeks and months ahead and for a major World Radio Conference in Geneva in 1995 (WRC-95). Essentially these project from the years of past U.S. efforts in the ITU arena. Discussions in the course of the Negotiated Rulemaking Committee meetings raise concerns as to whether the U.S. actions in the various international telecommunications negotiations, meetings, and conferences now underway or planned harmonize with the actions under consideration in CC Docket No. 92-297.

cej/lrr/r#4/neg.rule

ENCLOSURE (D)

September 28, 1994

STATEMENT ON BEHALF OF HARRIS CORPORATION --
FARINON DIVISION AND DIGITAL MICROWAVE CORPORATION

As the Negotiated Rulemaking Committee has completed its work, this statement is submitted to call attention to the continued requirements for spectrum in the 27.5-29.5 GHz band for the "traditional" terrestrial microwave service. This subject was raised and discussed early in the Committee's proceedings. Pursuant to that discussion, NRMC No. 33 was submitted to the Committee where it was noted. NRMC No. 33 was supported later by a separate submission to the Committee by the Telecommunications Industry Association (TIA).

In the course of the aforementioned discussion, the "Facilitator" deemed NMRC No. 33 and the subject of "traditional" terrestrial microwave as being a collateral issue vis-a-vis the objective stated in the Charter for the Negotiated Rulemaking Committee. Continuing, he stated the matter could be discussed after the principle work of the Committee has been completed, provided there is sufficient time and, in any event, it would be a proper subject for discussion in a later Further Notice of Proposed Rulemaking in CC Docket No. 92-297. Time has run out on further discussion in the Committee hence this statement is being submitted.

On April 19, 1991, Harris-Farinon filed a Petition for Rulemaking with the FCC to adopt a channelization plan for the 27.5-29.5 GHz band and to make the band available for both Part

21 and Part 94 services. The Digital Microwave Corporation filed supporting comments. That petition was filed for two primary purposes, viz, (a) to channelize the 27.5-29.5 GHz band so that manufacturers would have a standard for their products and (b) to respond to requirements of the telecommunications users who were already conscious in 1991 of the approaching saturation of the 18 GHz band and the developing congestion in the 23 GHz band in some metropolitan areas. Since 1991, U.S. manufacturers of microwave equipment have grown to be more dependant than ever on their capability to successfully address the export market.

In Europe and all of Region I, a major portion of the 23 GHz band was allocated for Satellite HDTV broadcasting. Domestically the explosion of cellular and PCS communications clearly dictated an explosion for short-haul fixed microwave links. Further the long time fixed microwave use of the "2 GHz" band became foreclosed when the Commission reallocated the band for mobile satellite communications. It now appears to be only a matter of time before the entire spectrum below 10 GHz will no longer be available for terrestrial fixed communications. In sum, future emphasis and growth of terrestrial fixed microwave will be in the higher frequency bands.

There were also clear signs that a promising export market for terrestrial fixed microwave equipment operating in the 27.5-29.5 GHz band was developing, not only in Europe but also in the Pacific Rim countries. (For example, initial performance specifications and frequency assignment criteria for terrestrial fixed radio equipment operating in the 27.5-29.5 GHz band were

promulgated in Spain in June 1989 and in the U.K. in July 1991.) The Harris-Farinon filing in April 1991 was a logical and timely step. The export of American communications-electronics products was and remains a very high item of interest to the U.S. Government.

Since April 1991 interest in the 27.5-29.5 GHz for terrestrial fixed communications has exploded. European countries are negotiating with U.S manufacturers to develop terrestrial fixed communications equipments. If the U.S. also permitted the 27.5-29.5 GHz band to be used for "traditional" terrestrial microwave, U.S. manufacturers would have a significant competitive edge.

It is ironic that the Commission put aside the Harris-Farinon petition because there was "no evidence of either manufacturer or subscriber interest in the 28 GHz band for conventional private or common carrier point-to-point use." A principle reason for the Harris-Farinon petition in April 1991 was to channelize the band so that users could know it was available and manufacturers would have a standard to guide the establishment of production lines. At the time Harris-Farinon and the Digital Microwave Corporation had in fact correctly foreseen an international interest for that band which had just recently been channelized in other countries.

Indications are clear that the Commission sees the introduction of LMDS into the 27.5-29.5 GHz band as a means of providing competition to the cable-TV industry. While this view is understandable for the 1990-1991 time frame, much has happened

since then in the field of telecommunications. For one thing, DBS systems are now operational and expanding rapidly thereby providing competition for cable-TV. The explosion of interest in PCS communications has created new demands for supporting fixed microwave communications for which the 27.5-29.5 GHz band would be ideal. Finally, serious attempts are underway to enable the telephone companies to use their lines for the home for delivery of television programming and other video services. Of relevant interest, on September 16, 1994 the Canadian CRTC announced that telephone companies will be permitted to offer a range of voice/data/video telecommunications services to local subscribers. In the USA, several telephone companies have already been authorized by the FCC to construct broadband facilities for carrying voice/data/video to the home. In short, the competition to cable-TV situation has changed from 1991 when the possibility of LMDS entered the picture.

After participating in the Negotiated Rulemaking Committee for nearly two months, Harris-Farinon and Digital Microwave Corporation feel that it was unfortunate that the 27.5-29.5 GHz band was selected for proposed LMDS operations. This band is allocated world-wide for satellite operations and satellite interests have been planning to use that allocation. Concurrently the 27.5-29.5 GHz band was allocated internationally for terrestrial fixed use because such usage could be made compatible with fixed satellite operations. The super imposition of LMDS in this band has the effect of destroying years of planning. To define LMDS as a "fixed" service to get it

qualified for operation in the 27.5-29.5 GHz band stretches the definition of a fixed service unreasonably. (It is interesting that once in awhile in the course of the Negotiated Rulemaking Committee discussions, LMDS was sometimes inadvertently referred to as a "broadcast".)

Having stated the foregoing, Harris-Farinon and Digital Microwave Corporation suggest that the Commission consider the following as a means of resolving the current dilemma with the 27.5-29.5 GHz band

(a) As a first choice, if LMDS is to materialize in its present analog form, that it be in a band other than 27.5-29.5 GHz.

(b) Failing (a) above reduce the LMDS allocation to a 1000 MHz allocation made up of two 500 MHz blocks specifically 28-28.5 GHz and 29.0-29.5 GHz. (The advent of DBS and the merging of cable and telephoning networks has altered the competition picture.)

(1) Permit "traditional" terrestrial microwave in the 27.5-28.0 and 28.5-29.0 GHz band

(2) Accommodate FSS in the same bands as (1).

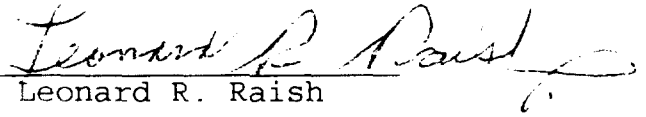
(3) Take advantage of the Suite 12 - Motorola agreement to place MSS Feeder links in the 29.0-29.5 GHz band shared with LMDS.

Before concluding, the Commission is urged to take NMRC No. 33 (referenced in the first paragraph of this statement) into account as it considers the results of the Negotiated Rulemaking Committee. There are bona fide requirements for "traditional" terrestrial fixed communications in the 27.5-29.5 GHz band that operationally do not fit into an LMDS system. There is no reason to exclude entirely the "traditional" terrestrial fixed microwave service from that band.

Finally, and in conclusion, Harris-Farinon and Digital Microwave Corporation commend the Commission staff for their superb work with the Negotiated Rulemaking Committee. Their task was extremely difficult, however, they performed at all times with great patience, understanding, and professionalism.

Respectfully submitted,

DIGITAL MICROWAVE CORPORATION AND
HARRIS CORPORATION - FARINON
DIVISION

By: 
Leonard R. Raish

Their attorney and representative
on the Negotiated Rulemaking
Committee

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